UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,559	11/14/2005	Jacques Villiers	1606.74249	8944

24978   7590   02/14/2011
GREER, BURNS & CRAIN
300 S WACKER DR
25TH FLOOR
CHICAGO, IL 60606

EXAMINER
MAWARI, REDHWAN K

ART UNIT	PAPER NUMBER
3663	

MAIL DATE	DELIVERY MODE
02/14/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/556,559	VILLIERS, JACQUES
	Examiner	Art Unit	
	REDHWAN MAWARI	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 October 2010</u>.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>29-39,43-49 and 52</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>29-39,43-49 and 52</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>14 November 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

Response to Amendment

This Office Action is responsive to Applicant's amendment and request for

reconsideration of application 10/556,559 filed on October 20, 2010.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 29-39, 43-49 and 52 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kirk (6,604,044) in view of Choate (5,212,804) and further in view of

Constant (5,043,903).

Consider claim 29, Kirk discloses a device for automated evolutionary

assistance to air traffic controllers including a computer including having a

software program permitting the receipt of data for equipping an air traffic control

system including flight plans of; it would have been obvious that a radar is utilized

in an aircraft environment; however the examiner introduces a secondary reference for more clarification;

Constant teaches aircraft and Radars (see at least FIG. 4)

Kirk discloses and elaborating and displaying them to air traffic controllers (see at least col. 3, lines 40-45); it would have been obvious to an ordinary skilled person in the art that the controller and the aircraft have a radio communication establishing a data link communication; however the examiner introduces a secondary reference;

Choate teaches the controllers having a radiotelephony link for communicating with the aircraft (see at least FIG. 1), the device comprising:

a software module for establishing and updating a computer agenda, which is a list of the aircrafts' potential conflicts on the basis of any information and computation means of the computer (see at least col. 3, lines 1-10);

said software module configured for selecting among said computer agenda, potential conflicts on crossing trajectories which are solvable by modification(s) of aircraft speed, climbing or descending rates, and lateral shift of route, said modification(s) being so minor as to not interfere with the air traffic controller's decision making processes (see at least col. 3, lines 20-29, and col. 3, lines 30-40); and

a data link between said computer and an on-board computer of the aircraft, the data-link being used for automatically:

collecting complementary data from said on-board computer of the aircraft, said complementary data including flight data for establishing said computer agenda (see at least col. 3, lines 20-29), and

transmitting said minor modifications of flight parameters to said on-board computer for execution by the aircraft without requiring the air traffic controller's prior agreement (see at least col. 6, line 13-18);

kirk does not explicitly disclose said modifications do not interfere with the air traffic controller's decision making process and transmitting said minor modifications of flight parameters to on-board for execution by the aircraft without the air traffic controller's prior agreement;

Constant teaches a system for aiding formation movement, particularly the flight of aircraft, wherein within each formation the relative positioning of the aircraft are controlled to avoid collisions. Position information is exchanged between a leader and follower, and the leader uses the analyzed relative positions in calculating commands to the apparatus of each follower including a command position (angle and distance from the leader), a commanded heading, a commanded speed, and a commanded altitude. The use of the commands, in a unified approach, is governed by predetermined rules of pilotability so that predetermined margins of safety are maintained and so that the danger of collisions is reduced, in which said commands do not interfere with air traffic controller and said modifications are executed without the air traffic controller's prior agreement (see at least abstract and FIG.3, FIG. 10, wherein parameters

are directly transmitted to the onboard computer from said device and said modifications are executed by the onboard computer).

Accordingly, it would have been obvious to an ordinary skilled person in the art at the time of the invention to modify the invention of Kirk to include the invention of Choate, radio telephony link, for the purpose of allocating communication channels to most efficient use the available radio spectrum among all the aircrafts.

Accordingly, it would have been obvious to an ordinary skilled person in the art at the time of the invention to modify the invention of Kirk to include the invention of Constant for the purpose of allowing aircrafts to fly safely in conditions with poor visibility.

Claims 29-39, 43-49 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirk (6,604,044) in view of Choate (5,212,804), Constant (5,043,903) and further in view of Erzberger (6,314,362).

Consider claim 30, Kirk discloses wherein said software module is further configured for elaborating optimal solutions to residual potential conflicts which would interfere with the controller's decision making process (see at least abstract); furthermore, see at least Erzberger, col. 11, lines 54-61).

Accordingly, it would have been obvious to an ordinary skilled person in the art at the time of the invention to modify the invention of Kirk to include the

invention of Erzberger for the purpose of saving time by bypassing some route
segments.

Consider claim 31, Erzberger teaches wherein said software module is
configured for determining in real time among said potential conflicts within said
computer's agenda those which are false conflicts and displaying the false
conflicts on a display of a sector in charge of the aircraft (see at least col. 12,
lines 1-7).

Consider claim 32, Erzberger teaches wherein said software module is
configured for for updating potential conflicts into said computer agenda even
before the aircraft have entered in a control sector with a potential conflict (see at
least col. 9, lines 7-26).

Consider claim 33, Kirk discloses further wherein said software module is
configured for selecting in said computer agenda particularly sensitive conflicts
that lead to the occurrence of conflict clusters that are difficult to solve (see at
least col. 11, lines 1-52); furthermore, see at least Erzberger (at least col. 10
lines 20-36).

Consider claim 34, Erzberger teaches wherein said software module is
configured for proposing solution(s) for avoiding such occurrence on a display
screen of the air traffic controllers presently in charge of the aircraft when said
conflicts only occur in a following sector (see at least col. 10, lines 20-51).

Consider claim 35, Kirk discloses wherein said software module is
configured for proposing to transfer conditions of an aircraft to a following sector

to the air traffic controller (see at least col. 3, lines 20-29, and col. 3, lines 30-40); and furthermore, Erzberger (see at least col. 10, lines 20-36).

Consider claim 36, Erzberger teaches further including a display device for displaying to air traffic controllers' icons in bi-univocal relationship with aircraft pairs on said computer agenda, said icons serving as a virtual keyboard for addressing in return specific messages to the computer concerning said aircraft pairs (see at least col. 8, lines 53-67).

Consider claim 37, Erzberger teaches wherein said display device is configuired for displaying the aircraft pairs of said computer agenda, and a specific icon that makes displaying the virtual keyboard specifically adapted to the situation when designated by the air traffic controllers (see at least col. 8, lines 53-67).

Consider claim 38, Erzberger teaches including display device for displaying on said computer's agenda an icon that indicates the air traffic controllers' desire to know the solution(s) elaborated by the computer and means for informing said computer of the chosen solution when designated by the air traffic controller (see at least col. 8, lines 53-67).

Consider claim 39, Farahat teaches wherein said computer module is configured for automatically transferring the chosen solution to concerned aircraft for execution (see at least Farahat abstract).

Consider claim 43, Farahat teaches a display device for displaying each aircraft pair in potential conflict as a point and its speed vector, the coordinates of

said point being respectively the delay between a present moment and a moment

when said aircraft pair will have a minimum longitudinal separation, and the

separation distance at the present moment (see at least Farahat abstract).

Consider claim 44, Erzberger discloses wherein said computer module is

further configured for associating a label providing any necessary data

concerning the aircraft with the point representing the aircraft pair (see at least

Erzberger col. 11, lines 45-55).

Consider claim 45, Erzberger discloses wherein said computer module is

further configuired for associating an indicator giving a vertical separation

distance when their horizontal separation distance is minimum with the point

representing the aircraft pair (see at least Erzberger col. 8, lines 5-35).

Consider claim 46, Erzberger discloses wherein a designation by a

controller of an aircraft on any display screen makes the aircraft and an aircraft

conflicting with it appear on other display screens (see at least Erzberger col. 10,

lines 21-37, FIG. 5).

Consider claim 47, Erzberger discloses wherein said computer module is

configured for receiving data confirming the proper execution of instructions from

said aircraft (see at least abstract, wherein click and send is construed as

confirmation).

Consider claim 48, Farahat teaches wherein said computer module is

configured for sending a message to two conflicting aircraft for sub-delegating to

the conflicting aircraft the responsibility of insuring their safe separation by their

own means according to clearances chosen among a set of possible conflict

resolution manoeuvres (see at least Farahat col. 3, lines 28-34).

Consider claim 49, Erzberger discloses wherein said computer module is

configured for insuring automatic display of the delegated conflict, so that said

computer's agenda provides a permanent monitoring board displaying a list of

the delegated conflicts and a list of potential conflicts still to be solved (see at

least Erzberger col. 2, lines 36-50, col.5, lines 7-15).

Consider claim 52, claim 52 is rejected using the same art and rationale

used to reject claim 1.

Response to Arguments

Applicant's arguments have been fully considered but are not persuasive. In

particular the applicant argues:

A) Experiments performed after the invention of the present application

confirmed that slight modifications of the flight parameters that stay within tolerance

limits of the flight plans (+/- 3% in longitudinal and vertical speeds) are undetectable by

air traffic controllers, and a lateral shift of +/- 5 nm from the nominal route is also

undetectable. These minor modifications therefore do not need air traffic controller

review and can be automatically transferred to the concerned aircraft. Such minor

modifications to flight parameters have been shown to sufficiently solve greater than

80% of all air traffic conflicts. The capacity of present airspace is limited by the

capabilities of human beings to handle real time data. Thus, the present invention

enhances the air space capacity by efficiently reducing an air traffic controller's traffic

control decisions. The combination of Kirk , Choate and Constant fails to disclose or

suggest such subject matter.

B) Additionally, as stated in Applicant's previous response, the system of

Erzberger does not automatically transmit modifications to the flight parameters of an

onboard computer of an aircraft as recited in amended claims 29 and 52. Instead, the

conflict information is advisory only and is still reviewed by an air traffic controller to

make a decision on whether to change the flight path of an aircraft. Erzberger's system

therefore involves significant air traffic controller review and attention.

C) Furthermore, claim 37 recites, among other things, that the "display device is

configured for displaying the aircraft pairs of said computer agenda, and a specific icon

that makes displaying the virtual keyboard specifically adapted to the situation when

designated by the air traffic controllers." The Examiner states that Erzberger discloses

the subject matter of claim 37 at Col. 8, lines 53-67. Applicant disagrees. Erzberger

discloses a graphical user interface as shown in FIG. 4 but does not disclose or suggest

utilizing a virtual keyboard for use by air traffic controllers.

In response to A) applicant's argument that the references fail to show certain

features of applicant's invention, it is noted that the features upon which applicant relies

(i.e., **minor modification** is claimed in the independent however, it is not defined how

the minor modification does not interfere with the Traffic contrller) are not recited in the

rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van Geuns*, 988

F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's arguments against the references individually, one

cannot show nonobviousness by attacking references individually where the rejections

are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ

871 (CCPA 1981).

Applicant is reminded that claims must be given their broadest reasonable

interpretation. Given the broadest interpretation, as claimed it is the examiner's

position, the reference of record teaches what he is argued. Constant teaches a system

for aiding formation movement, particularly the flight of aircraft, wherein within each

formation the relative positioning of the aircraft are controlled to avoid collisions.

Position information is exchanged between a leader and follower, and the leader uses

the analyzed relative positions in calculating commands to the apparatus of each

follower including a command position (angle and distance from the leader), a

commanded heading, a commanded speed, and a commanded altitude. The use of the

commands, in a unified approach, is governed by predetermined rules of pilotability so

that predetermined margins of safety are maintained and so that the danger of collisions

is reduced, in which said commands do not interfere with air traffic controller and said

modifications are executed without the air traffic controller's prior agreement (see at

least abstract and FIG.3, FIG. 10, wherein parameters are directly transmitted to the

onboard computer from said device and said modifications are executed by the onboard computer).

In response to B) examiner respectively disagrees. Applicant is reminded that claims must be given their broadest reasonable interpretation. Given the broadest interpretation, as claimed it is the examiner's position, the reference of record teaches what he is argued. The invention of Kirk is "a method for automatically generating lateral resolutions for a given aircraft", and thus Kirk automatically generates solutions for any conflict an aircraft might encounter. Furthermore, Kirk in at least col. 5, lines 64-67, and col. 6, lines 1-10 discloses the trial plan is automatically initiated for newly assigned parameters. Applicant must define what he has argued in the claim.

In response to C) examiner respectively disagrees. Applicant did not explicitly point out how cited reference does not disclose virtual keyboard. Therefore, examiner believes cited reference still reads on the argued limitation.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Redhwan Mawari whose telephone number is 571 270

1535. The examiner can normally be reached on 7:30 AM - 5PM Mon-Fri Eastern Alt

Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jack Keith can be reaches at 571-272 6878. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO

Customer Service Representative or access to the automated information system, call

800-786-9199 (IN USA OR CANADA) or 571-272-1000.

02/09/2011

/R. M./
Examiner, Art Unit 3663

/Mark Hellner/
Primary Examiner, Art Unit 3663